## REMARKS

Reconsideration and withdrawal of the rejections of the application are respectfully requested in view of the amendments and remarks herewith, which place the application into condition for allowance. Claims 1-6, 9-14, 17-21 and 33-36 are under examination in this application; claims 35 and 36 are added by this amendment. Support for the added claims can be found on page 44, lines 24-25 of the application.

The Examiner indicated in the March 27, 2002 telephonic interview that the rejection under 35 U.S.C. § 112, first paragraph, was the only rejection remaining. Therefore, the arguments presented below are directed to the written description rejection.

Claims 1-6 were rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time of filing. The Applicants respectfully disagree. It is submitted that the present application provides an adequate written description of the claimed invention; thus, the following traverse is offered.

The Examiner indicated during the March 27, 2002 telephonic interview that he would like to see some correlation between the structure and function of TCa2, for example, a characteristic or characteristics that link pCal and TCa2 to define the transposon genus. In fact, pCal and TCa2 have sequence identity, i.e., are 100% identical. The retrotransposon is 6980 base pairs long. When it is integrated into the genome or plasmid, it is called TCa2; when it exists as a free copy, it is called pCal. Thus, there is no difference between the sequences of pCal and TCa2. Expressed another way, any part of the approximately 7kbp retrotransposon would be identical, whether it was integrated or existed as a free copy. Therefore, in a relative translation, both code for exactly the same protein.

It is also emphasized that there are four GAAAAA repeats in pCal/TCa2. The repeat is thought to act as a regulatory mechanism, which produces more *gag* than *gag-pol*. No other retrotransposon has any repeat structure resembling this sequence; it is very unusual to have these repeats in front of the stop codon. It is believed to be involved in the suppression mechanism, however, it is not entirely known how the mechanism works. There is absolutely no other example of such a repeat structure separating gag and pol in any other known retrotransposon. This is merely one of the many aspects that underscores the distinctiveness of

pCal/TCa2 from all other known retrotransposons. So, although the GAAAAA repeat distinguishes pCal/TCa2, it is distinctive in many other ways, and the presence of the repeat should not be used to limit the claims. However, claims 35 and 36 have been added to emphasize this feature of pCal.

A search has been carried out using the NIH database (NCBI) to determine the closest element to pCal/TCa2. The search revealed that the nearest sequence identity had a match of only 45% similarity for the particular sequence used. The database was searched for similarity to the 324 amino acids for *gag* (highlighted). TCa2 *gag* found itself ($e^{-154}$, 272/274 matches). The next best match is to an unknown sequence in *C. elegans* (36/80 or 45% similarity over a 75 amino acid match; e value of 0.30 is not significant). This match is extremely low and, in fact, is only the level expected from random matching, demonstrating that pCal/TCa2 is extremely dissimilar to anything else in the database. Results of this search are attached. Also attached is the gene bank entry for TCa2.

It is respectfully submitted that the description of these features provides adequate written description for the retrotransposons disclosed in the present specification. Therefore, reconsideration and withdrawal of the Section 112, first paragraph, rejection is solicited.

## CONCLUSION

In view of the remarks herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date.

Respectfully submitted,
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